

Claims

1. Oil inlet for an internal combustion engine piston that is provided with a cooling duct, having an approximately circular cover of the cooling duct, to which the oil inlet is attached, and the cooling duct can have a free cooling oil stream applied to it by way of the oil inlet, by means of an oil spraying nozzle rigidly connected with the engine housing, from the crank space, through the free interior of the piston shaft, **characterized in that** the inner wall surface (3) of the oil inlet (2) is shaped according to a function of a one-sheeted rotating hyperboloid or of a surface-delimited torus, whereby the shape is determined as a function of the stream position of the cooling oil stream (7) produced by the oil spraying nozzle (6), with reference to the cross sectional entry area (B, D) of the oil inlet.
2. Oil inlet as recited in claim 1, **characterized in that** in the case of an approximately perpendicular stream position of the cooling oil stream relative to the cross sectional opening area (B), the inner wall surface (2) of the oil inlet (3) has a shape that is formed in the right-angle coordinate system:

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(x, y) by means of rotation of the hyperbolic function $y = \pm b/a * \sqrt{x^2 - a^2}$ about its y axes, whereby $a = 6$ mm, $b = 5$ mm, and the cross sectional entry area (B) is formed by a parallel cut at the distance $y_B = c = 8$ mm relative to the x axis.

3. Oil inlet as recited in claim 1, **characterized in that** in the case of a slanted position of the free cooling stream (7), the inner wall surface (2) of the oil inlet (3), with a stream that lies within the cross sectional entry area (D) of the oil inlet (2) in every stroke position of the piston, is configured in the shape of a toroid that is formed in the right-angle coordinate system (x, y, z) at a distance $r = 20$ mm from the y axis, by means of rotation of a circle having the radius R about the y axis, which is parallel to the circle area and does not intersect the circle, whereby $r = 20$ mm, $R = 13$ mm, and the total height h of the oil inlet is 12 mm.
- 4.. Oil inlet as recited in claim 1, **characterized in that** the cross sectional areas (A, C) of the oil inlet (3) are arranged approximately in the plane of the circular cover (5) of the cooling duct (4) ..

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5. Oil inlet as recited in claim 2, **characterized in that** the cross sectional area (A) determined by the function constant a approximately corresponds to the oil stream cross section at the upper dead center (OT) of the piston.